A.D. 1854 . . . . . N° 613.

SPECIFICATION

OF

JAMES WOODFORD.

SMOKE-CONSUMING ROTARY GRATE.

LONDON:
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1854.

A.D. 1854 . . . . . N° 613.

Smoke-consuming Rotary Grate.

LETTERS PATENT to James Woodford, of Hatton Garden, Watchmaker, for the Invention of "**A Smoke-consuming Rotary Grate.**"

Sealed the 8th September 1854, and dated the 14th March 1854.

PROVISIONAL SPECIFICATION left by the said James Woodford at the Office of the Commissioners of Patents, with his Petition, on the 14th March 1854.

I, James Woodford, of Hatton Garden, Watchmaker, do hereby declare the nature of the said Invention for "**A Smoke-consuming Rotary Grate**" to be as follows:—

I construct the said grate on a rotary principle, so as to turn upon two centres or studs in the centres of the ends or cheeks of the said grate, which may be of a circular, square, or other form. The studs run in sockets in the sides of the stove in which the said grate is to be fixed, the form of the stove being adapted to receive the same; the stud at one end of the grate passes through the side or cheek of the stove, behind which it carries a toothed wheel; this toothed wheel gears with and is turned by a pinion at the back of the face plate of the stove; this pinion is mounted on a stud which is fixed in the face plate. In front of the face plate a handle is attached to the stud by means of which the grate is turned round, and is supplied with fuel as hereafter described.

The rotary grate is fitted with bars. All round the ends or cheeks are solid plates without apertures. The grate is divided into compartments by perforated plates of iron or dividing grates, which plates or grates radiate from the

centre or axis of the grate. In each compartment provision is made for supplying the fuel by moveable bars, by which each compartment can be opened and closed independently of each other. At the back and partially under the grate there is an outer case which fits nearly close to the grate and keeps the fuel or fire from falling out.

I divide the said rotary grate in the manner above mentioned, with the means of supplying each compartment with fuel separately, for the purpose of causing a more perfect consumption of the products of combustion, by placing the fuel with which the fire is supplied in one of the compartments, and then by adjusting the position of the grate so as to cause the products of combustion (produced by the action of the fire in the adjoining compartments) to pass through the fire in the other compartments of the grate and be wholly or partially consumed thereby. The position of the grate is regulated or adjusted by turning the handle at the side of the stove as before mentioned, and is held in the required position by a catch or other suitable contrivance.

This grate may be applied to boiler and other furnaces, and also to ordinary stoves of suitable form.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said James Woodford in the Great Seal Patent Office on the 14th September 1854.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, James Woodford, of Hatton Garden, Watchmaker, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fourteenth day of March, in the year of our Lord One thousand eight hundred and fifty-four, and in the seventeenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said James Woodford, Her special licence that I, the said James Woodford, my executors, administrators, and assigns, or such others as I, the said James Woodford, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**A Smoke-consuming Rotary Grate**," upon the condition, amongst others, that I, the said James Woodford, should, by an instrument in writing under my hand and seal, particularly describe and ascertain the nature of the said Invention, and in what

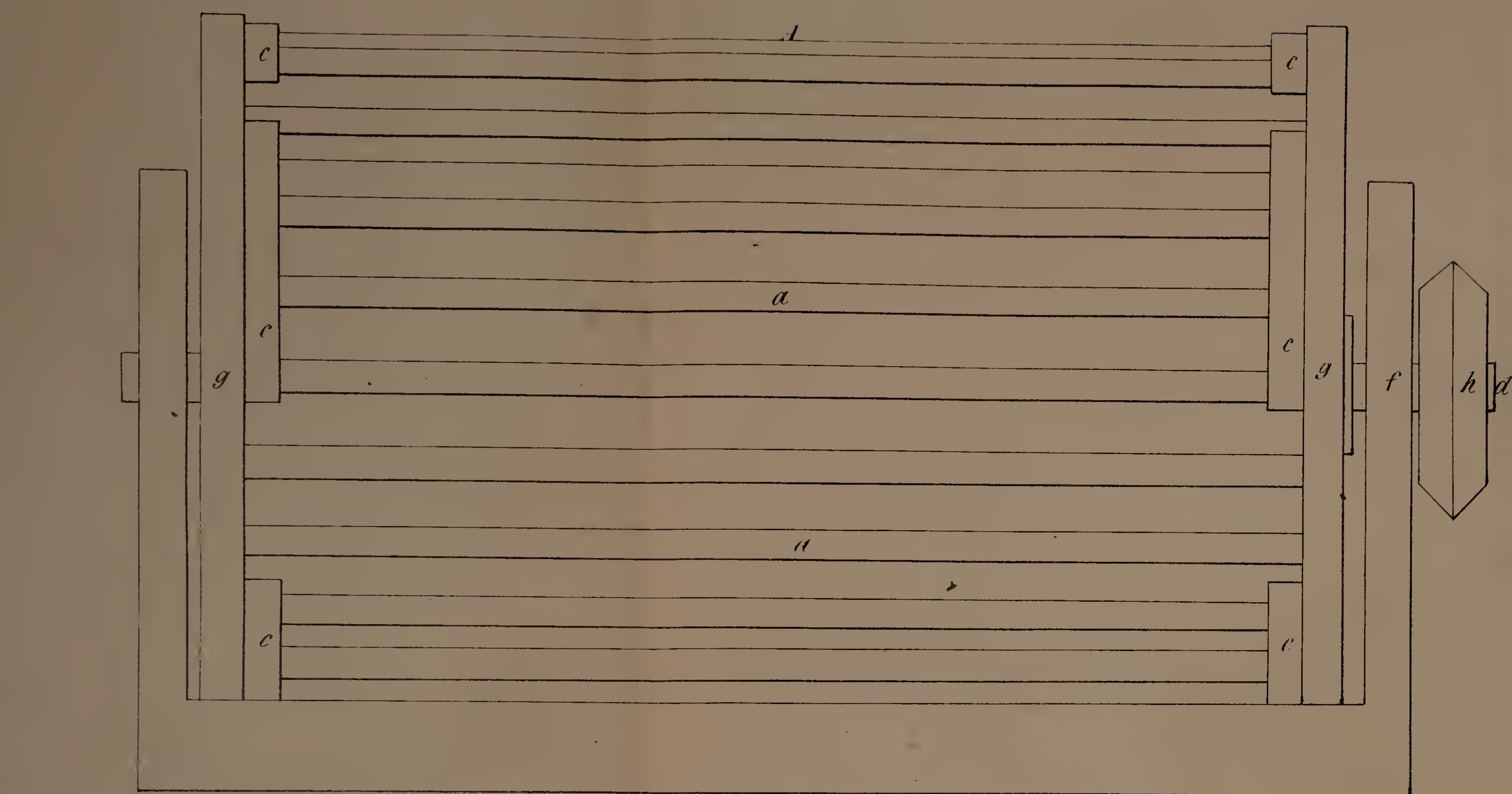

Fig 1.

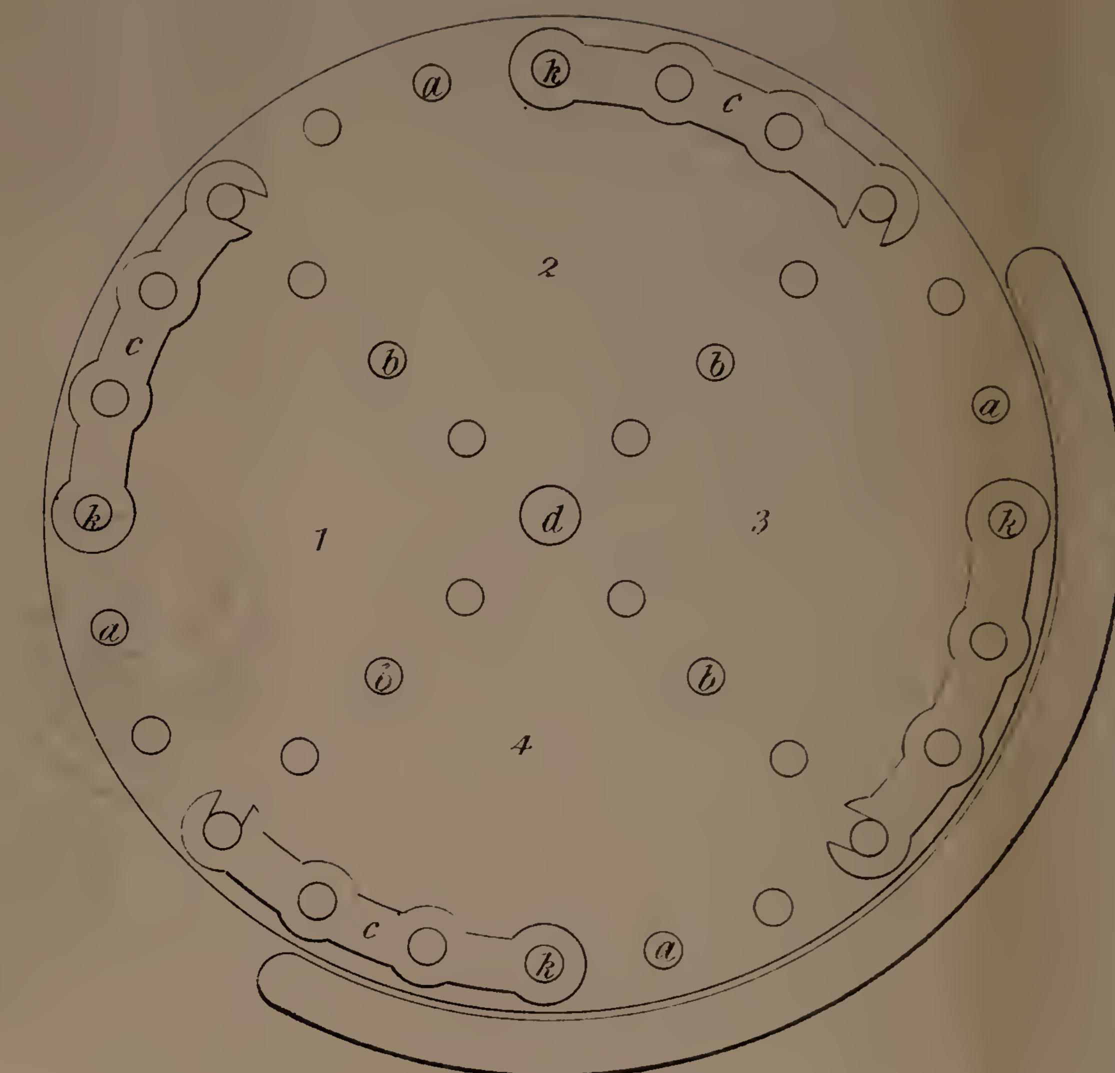

Fig 2.

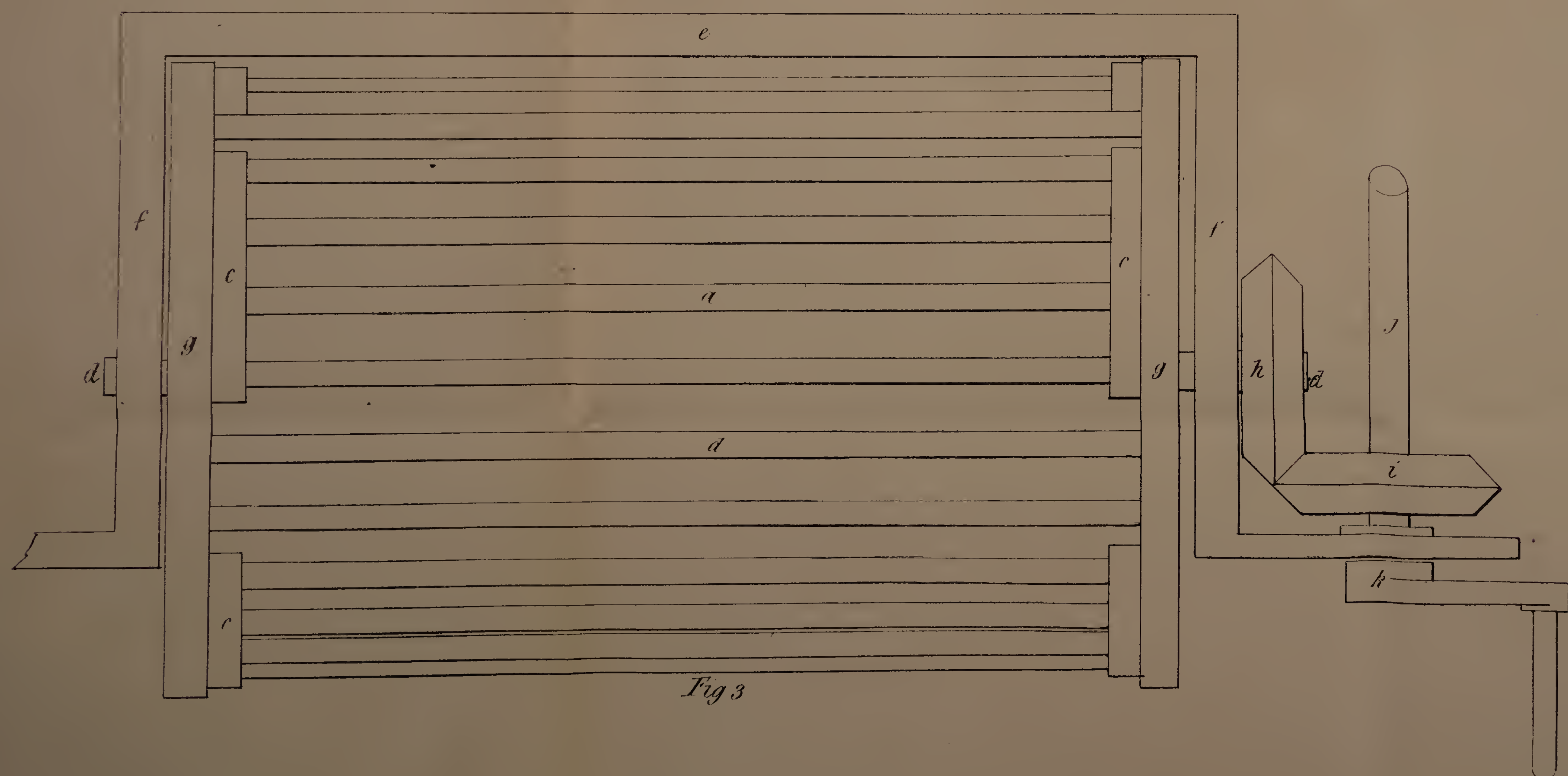

Fig 3

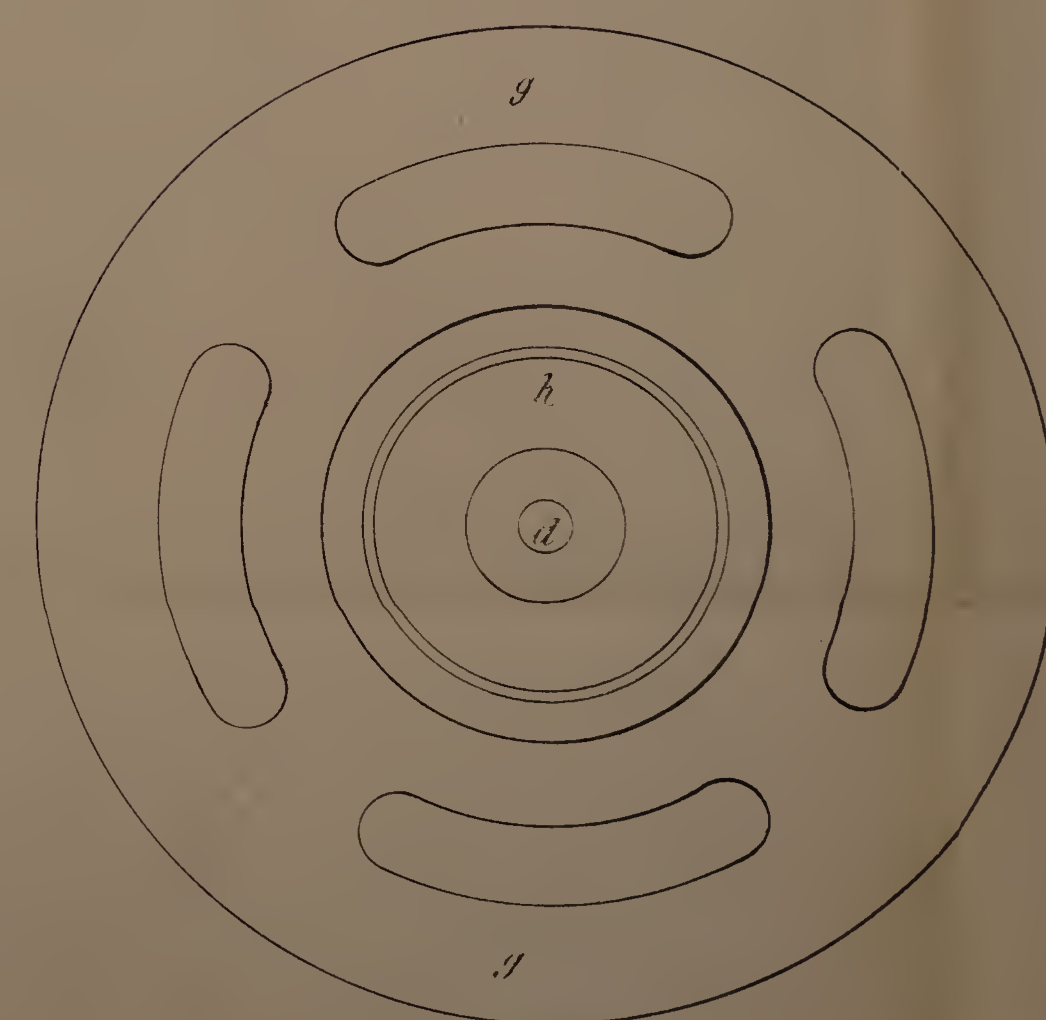

Fig 4.

Scale–3 inches to a foot.

manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said James Woodford, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement and description thereof, together with the accompanying Drawings and the explanation applying thereto herein contained, that is to say:—

My Invention consists of a rotary fire-grate, which is constructed and fitted in the following manner:—I construct the said grate in a cylindrical or other form, with plain or perforated ends, and openings and bars round the periphery. I divide the grate into a number of compartments by placing bars across the interior, and make the bars on the periphery of each compartment moveable for supplying the same with fuel. In the centre of each end a stud or axis is fixed, and upon these studs or upon a bar running through the grate, the same is mounted between the cheeks of the stove, or on suitable supports in a furnace, and upon these studs or bar the grate rotates. On the stud or bar at one end of the grate a wheel is fixed; this wheel may be either a toothed wheel or a perforated plate, and turned by another wheel or plate with pins on the edge, to fit into the perforations in the iron plate as the case may be, and fixed on a stud or shaft in the side of the stove or at some convenient place in the side or end of the furnace, at an angle with the wheel or plate fixed to the stud or bar at the end of the grate, and turned by a handle in front of the stove or at the side or end of the furnace. At the back and partially under the grate I fix a shield or covering plate. The grate may be mounted without the wheels, and turned by any other suitable means. I divide the said grate into separate compartments, and mount the same as above described, for the purpose of causing a more perfect consumption of the products of combustion, by placing the fuel by which the fire is supplied in one of the compartments, and then by adjusting the position of the grate so as to cause the products of combustion from the fuel last supplied to pass through the fire with which it is placed in contact.

Explanation of the Drawings.

The Drawings are laid down to a scale of 3 inches to a foot, and in referencing the different Figs. the same letters are repeated in the same parts of the grate, so that one reference applies to the whole. Fig. 1 is a front elevation of the grate. Fig. 2 is a section through the same on the line A, B, Fig. 1. Fig. 3 is a plan of the grate. Fig. 4 is a plan of the end plate where

the wheels and handle are placed. *a*, *a*, are the fire bars on the periphery of the grate; *b*, *b*, the dividing bars in the interior of the grate, and which divide it into the compartments 1, 2, 3, and 4; *c*, *c*, side frames in which the ends of the bars that are moveable are fitted so as to form a door, & open on the joints *k*, *k*, and are fastened at *l*, *l*; *d*, *d*, the studs or ends of the bar d^1, which runs through the centre of the grate; *e*, *e*, the shield or covering plate for keeping the fire from falling out, and for confining the heat at the back and partially under the grate; *f*, *f*, the cheeks or sides of the casing; *g*, *g*, the end plates of the grate; *h*, *h*, the wheel or plate by which the grate is turned; *i*, *i*, the other wheel fixed on a shaft *j*, which passes through the side plate in front of the grate; *k*, the handle for turning the same.

I have now to the best of my ability described and ascertained the nature of my Invention, and in what manner the same is to be performed; but I do not confine myself to the particular grate shown on the Drawings, as the form may be varied.

I claim the grate divided into compartments, and constructed so as to rotate upon an axis, as herein described.

In witness whereof, I, the said James Woodford, have hereunto set my hand and seal, this Fourteenth day of September, A.D. 1854.

JAMES WOODFORD. (L.S.)

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1854.